IN THE SPECIFICATION:

Please amend paragraph number **[0001]** as follows:

[0001] This application is a continuation of United States patent application Serial No. 09/121,878, filed July 24, 1998, now U.S. Patent 6,287,295, issued September 11, 2001, which claims the benefit of U.S. Provisional Application No. 60/053,689 filed July 25, 1997, pursuant to 35 U.S.C. § 119(e).

Please amend paragraph number **[0006]** as follows:

[0006] In the known osmotic delivery system 20 illustrated in FIG. 1, an osmotic tablet is used as the osmotic agent 24 and is placed inside the capsule 22. The membrane plug 26 is placed in an opening in the capsule 22 through which the osmotic ~~tablet~~ agent 24 and piston 28 were inserted. Known membrane plugs 26 are typically a cylindrical member with ribs, and operate in the same manner as a cork. These membrane plugs 26 seal the interior of the capsule from the exterior environment, essentially permitting only certain liquid molecules from the environment of use to permeate through the membrane plug into the interior of the capsule 22. The rate that the liquid permeates through the membrane plug 26 controls the rate at which the osmotic agent 24 expands and drives a desired concentration of beneficial agent 23 from the osmotic delivery system 20 through the delivery port 29. The rate of delivery of the beneficial agent from the osmotic delivery system 20 may be controlled by varying the permeability coefficient of the membrane plug 26.

Please amend paragraph number **[0072]** as follows:

[0072] FIGS. 2-6 illustrate features of an osmotic delivery system plug or semipermeable body assembly 30 according to one embodiment of the present invention. The osmotic delivery system plug 30 will be described in reference to an exemplary osmotic delivery system 70 according to one embodiment of the present invention illustrated in FIG. 7. The configuration of the osmotic delivery system plug 30 dictates the liquid permeation rate through

the plug, which generally controls the delivery rate of a beneficial agent 72 from the osmotic delivery system 70.

Please amend paragraph number **[00103]** as follows:

[00103] When used, the movable separating member or movable piston 74 is a substantially ~~cylindrically~~ cylindrical member which is configured to fit within the enclosure 71 in a sealed manner which allows the piston to slide along a longitudinal direction within the enclosure. The piston 74 preferably is formed of an impermeable resilient material and includes annular ring shape protrusions 76 which form a movable or sliding seal with the inner surface of the enclosure.

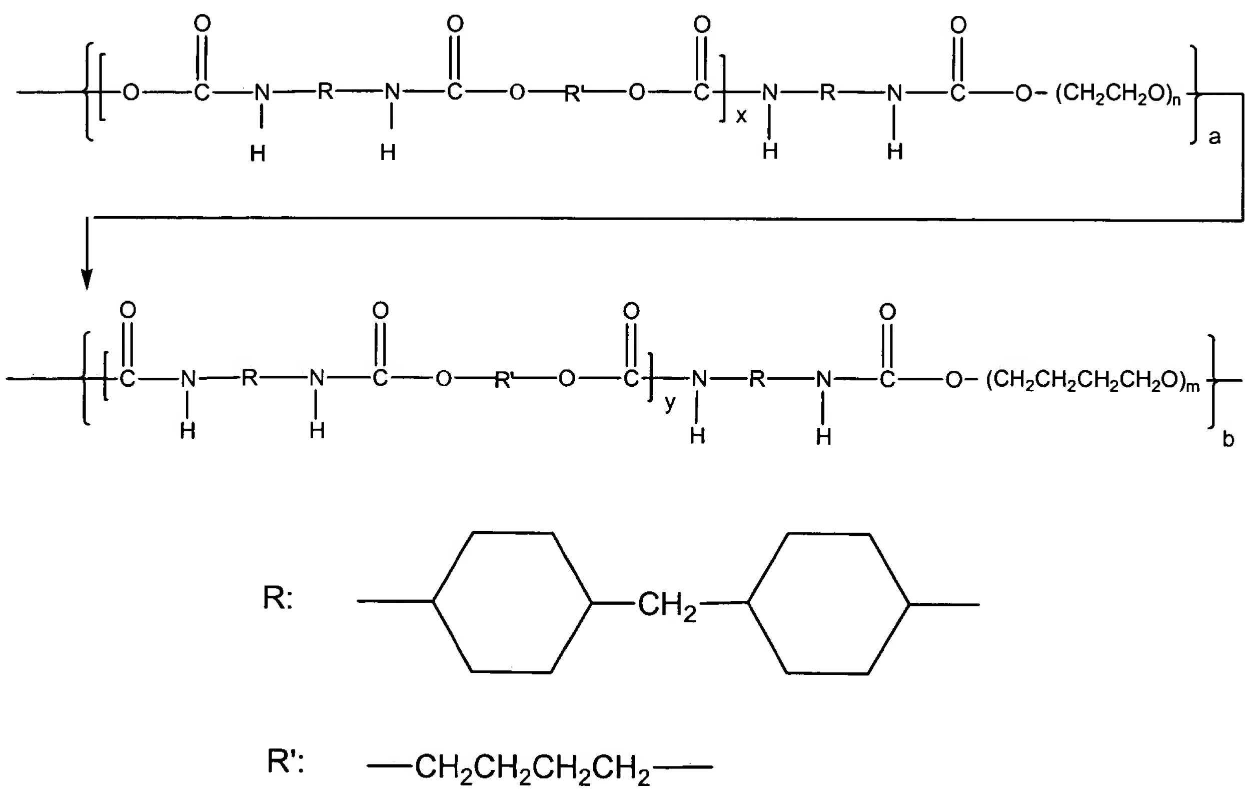
Please amend paragraph number **[00112]** as follows:

[00112] In assembling the osmotic delivery device 70 according to one embodiment of the present invention, the piston 74 is first inserted into the enclosure 71. Once the osmotic agent ~~78~~ 78, in the form of pellets or tablets, has been formed, it is placed inside the preformed enclosure 71 on top of the separating member 74. Then the osmotic delivery system plug 30, according to one embodiment of the present invention, is placed into the opening 79 of the enclosure 71 to close off and seal one end of the osmotic delivery system.

Please amend paragraph number **[00127]** as follows:

[00127] All pistons and enclosures were prelubricated. Sequentially, pistons 74 were first inserted into the enclosures 71. The enclosures were then filled with 10 μl of PEG-400 and thereafter, two osmotic agent 78 tablets were inserted. The HDPE insert plug 30 was presoaked in PEG-400 to eliminate any air trapped in the pores. The semipermeable bodies 32 were ultradried and the porous HDPE inserts were preinserted into the recess 52. After the osmotic delivery systems were assembled, they were then submerged in a water bath at 37°C. Beneficial agent release rate measurements were determined three times during the first week after

insertion, two times during the second week, and weekly thereafter. The depth of the recess 52 and corresponding length of the insert 60 were either 0, 59, 94, or 131 mils, as measured from the insert ends 56 of the membrane plugs 30. The diameter of the inserts 60 and recesses 52 for all tests was kept constant and was approximately 2.0 mm. The diameter and thickness or length (measured from end to end) of the semipermeable bodies 32 were also kept constant and were approximately 2.99 mm (diameter) and 150 mils (length). The specific membrane material used in the experiments was Tecophilic polyurethane (TECOPHILIC®, commercially available from THERMEDICS) having either 18%, 33% or 49% water uptake. The chemical structure of Tecophilic polyurethane is understood to be:



Please amend paragraph number **[00152]** as follows:

[00152] In the above described manner, the liquid permeation rate through the semipermeable ~~membrane~~ body 232 can be controlled. Although not illustrated, the

semipermeable body assembly 230 may also be configured with a recess and insert like the plug 30 illustrated in FIG. 7. This is further advantageous because a low liquid uptake membrane material can be used for the semipermeable body 232, while still permitting the liquid permeation rate to be controlled.

Please amend paragraph number **[00156]** as follows:

[00156] Like the liquid impermeable sleeve 280, the liquid impermeable sleeve 380 is separate from the enclosure 271, and surrounds only a portion of the entire peripheral surface of the semipermeable body 332 such that a portion of the peripheral surface is not immediately exposed to liquid when the osmotic delivery system is located in the liquid environment of use. Because the liquid impermeable sleeve 380 does not abut against the entire peripheral surface of the semipermeable body 332, the semipermeable body includes an exposure or liquid contact surface 348 defined by an area of the peripheral surface that is not surrounded by the liquid impermeable ~~sleeve 80~~ sleeve 380 and is located outside of the enclosure 371. The exposure surface 348 is immediately exposed to liquids when the osmotic delivery system 370 is located in the liquid environment of use.

Please amend paragraph number **[00170]** as follows:

[00170] The semipermeable body 632 is positioned within the liquid impermeable sleeve 680 such that the liquid impermeable sleeve may move relative to the semipermeable body 632. For example, the liquid impermeable sleeve 680 may receive the semipermeable body 632 and an interference fit manner sufficiently tight to retain the semipermeable body 632 within the liquid impermeable sleeve, while permitting the liquid impermeable sleeve 680 to slidingly move relative to the semipermeable membrane when the liquid impermeable sleeve is threaded onto the enclosure 671. However, the portion of the liquid impermeable sleeve 680 that abuts against the cylindrical exterior surface of the semipermeable body 632 is not immediately exposed to liquid when the osmotic delivery system 670 is located in a liquid environment of

use. When the liquid impermeable sleeve 680 is threaded onto the enclosure 671, the exposure surface 648 will include more than the flat surface of the semipermeable body that is perpendicular to the liquid impermeable sleeve 680. For example, as the liquid impermeable sleeve 680 is threaded onto the enclosure 671 such that it moves toward the enclosure 671, a portion of the cylindrical exterior surface 638 of the semipermeable body 632 may be exposed to increase the liquid permeation rate through the semipermeable ~~body.~~ body 632.

Please amend paragraph number **[00204]** as follows:

[00204] Although the osmotic delivery system plug 1030 includes the ribs 1034 to help form a seal between the enclosure 1071 and the semipermeable body 1032, other embodiments of the invention need not include the ribs 1034. For example, as illustrated in FIG. 26, the osmotic delivery system plug 2030 has a semipermeable body 2032 having an exterior surface 2048 that is smooth, entirely conical-shaped, and void of any ribs. In such an embodiment, an adhesive and/or an interference fit between the plug 2030 and the enclosure of the osmotic delivery system can be used to form the aforementioned seal between the enclosure and semipermeable body 2032. Thus, at least the base 2041 of the cone-shaped semipermeable body 2032 has a diameter that is greater than the internal diameter of the enclosure into which the body is to be inserted to help effect a seal between the semipermeable body and the enclosure. A portion of the conical exterior surface 2048 of the semipermeable body 2032 contacts the interior surface of the enclosure to define the seal between the enclosure and the semipermeable body. The portion of the conical exterior surface 2048 that contacts the interior surface of the enclosure 2071 is not immediately exposed to liquid when an osmotic delivery system incorporating the plug 2030 is located in a liquid environment of use. The portion of the conical exterior surface 2048 that does not contact the interior surface of the enclosure is immediately exposed to liquid when an osmotic delivery system incorporating the plug 2030 is located ~~in an~~ in a liquid environment of use.

Please amend paragraph number **[00208]** as follows:

[00208] As shown in FIG. 25, the osmotic delivery system plug 1030 can be located entirely within the enclosure 1071 such that the cone-shaped surface 1048 is also located entirely within the enclosure 1071. The plug 1030 may be inserted entirely through an opening 1079 of the enclosure 1071 of the osmotic delivery system 1070 because the plug 1030 does not include a stop surface or head preventing complete insertion, such as the stop surface 36 illustrated in FIG. 2. When the plug 1030 is completely inserted within the enclosure 1071 of the osmotic delivery system, the cone-shaped surface 1048 defines the liquid or exposure surface of the plug because it is immediately exposed to liquids when ~~the an~~ the osmotic delivery system 1070 is placed in a liquid environment of use. The plug 1030 may also be partially inserted into the opening 1079 of an osmotic delivery system enclosure 1071 such that a portion of the conical liquid contact surface 1048 is outside of the enclosure 1071.

Please amend paragraph number **[00213]** as follows:

[00213] As described above in reference to the plug 30, the depth of the depth surface 1050 within the semipermeable body 1032, and the distance the interior surface 1054 is from the longitudinal center axis C (or diameter 1046 shown in FIG. 22 of the recess 1052) determine the size of the hollow recess 1052 in the interior of the semipermeable body 1032. Together, the predetermined wall width w and the predetermined plug thickness t define the effective thickness L of the semipermeable body 1032. As described above, by varying the size of the recess 1052, or, in other words, by varying the predetermined plug thickness t and/or the predetermined wall width w, the effective thickness L of the semipermeable body 1032 of the osmotic delivery system plug 1030 may also be varied. In this manner, the liquid permeation rate through the body 1032 can be controlled.

Please amend paragraph number **[00215]** as follows:

[00215] FIG. 23B illustrates a preferred semipermeable body ~~1030'.~~ 1032'. The recess 1052' includes a cylindrical portion and a conical portion. Hence, the recess 1052' is in the shape of a bullet and has a volume greater than the cylindrical recess 1052. Alternatively, the recess 1052 can be entirely conical, such as the recesses 2052, 2052' shown in FIGS. 26 and 27. The recess 1052' generally follows the contours of the outer surface ~~1038~~ 1038' and cone-shaped surface 1048'. The distance of the depth surface 1050' relative to the cone-shaped surface 1048' is constant, and the distance of the outer surface 1038' relative to the interior surface 1054' is constant. Thus, the predetermined wall width w' and the predetermined plug thickness t' are approximately equal and constant. Although not illustrated, the semipermeable bodies ~~1030, 2030~~ 1032, 2032 need not include a recess or hollow portion.

Please amend paragraph number **[00223]** as follows:

[00223] Because the surface area A_c of the conical surface 1048 is greater than that of the flat circular surface 148, the liquid permeation rate through the semipermeable body ~~1030~~ 1032 will be greater than that through the semipermeable body ~~130~~ 132 (assuming that the semipermeable bodies ~~130, 1030~~ 132, 1032 have roughly the same effective thickness L). Accordingly, the liquid permeation rate through the semipermeable bodies of the present invention may be increased by increasing the surface area A of the semipermeable body that is immediately exposed to liquids upon insertion of the osmotic delivery system in a liquid environment of use. For example, FIG. 30 illustrates the theoretical increase in beneficial agent release rate dMt/dt (μl/hour) from an osmotic delivery system having a semipermeable body having a conical surface area A_c (such as that illustrated in FIG. 23B) as the diameter of the semipermeable body increases. FIG. 30 also generally illustrates the actual increase in beneficial agent release rate dMt/dt (μl/hour) from an osmotic delivery system having a semipermeable body having a flat circular surface area A_o (such as that illustrated in FIG. 12) as the diameter of the semipermeable body increases. The calculations used to obtain the curves shown in FIG. 30

assume that both semipermeable bodies are completely inserted within an enclosure of an osmotic delivery system.

Please amend paragraph number **[00227]** as follows:

[00227] As set forth above, the liquid permeation rate through the semipermeable membrane bodies of the present invention may be increased by increasing the surface area A of the semipermeable body that is immediately exposed to liquid when the osmotic delivery system is located in a liquid environment of use. For example, the exposure surface area A may be increased by forming the conical portion 1033 on the semipermeable body 1032. Because the exposure surface area A_c of the cone-shaped surface 1048 is greater than the exposure surface area A_o of the flat or end surface 148, the liquid permeation rate through the semipermeable membrane 1032 is greater than that of the semipermeable ~~membrane~~ body 132. Hence, the beneficial agent delivery rate dMt/dt may be increased by increasing the surface area A of the semipermeable body that is immediately exposed to liquids when the osmotic delivery system is located in a liquid environment of use.

Please amend paragraph number **[00231]** as follows:

[00231] In the above described manner, the liquid permeation rate through the semipermeable ~~membrane~~ bodies 32, 132, 232, 332, 432, 632, 732, 732, 832, 932, 932′, 932″, 1032, 1032′, 2032, 2032′ can be controlled in the osmotic delivery devices illustrated in FIGS. 7, 13-20, 25 and 28. This is especially advantageous because one membrane material can be used for the semipermeable bodies, while still permitting the liquid permeation rate to be controlled or varied. Additionally, as described above, by varying the "effective thickness" L and/or the exposure surface area A of the semipermeable bodies, the liquid permeation rate through the semipermeable bodies, and hence the delivery rate of the beneficial agent from the osmotic delivery system, can be controlled. This is beneficial because, for example, different desired liquid permeation rates through the semipermeable bodies are obtainable from semipermeable

bodies formed from the same material having the same permeability coefficient and liquid uptake characteristics. This is further beneficial because biocompatibility and toxicity tests need only be performed on one semipermeable material. Moreover, it is especially desirable that the beneficial agent delivery rate from the osmotic delivery system be easily controlled by simply varying the liquid permeation rate through the semipermeable body of any one of the alternative embodiments of the present invention described above.